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REVIEWS AND ABSTRACTS OF LITERATURE

Lehrbuch der Logik auf positivistischer Grundlage mit Berücksichtigung der Geschichte der Logik. TH. ZIEHEN. Bonn: A. Marcus & E. Webers Verlag, 1920. Pp. viii + 866.

The positivistic standpoint is concerned with the given, and Ziehen's "binomistic" analysis of this reveals (1) R-elements (a kind of knowable things-in-themselves) interacting according to the law of causation, and (2) the same R-elements entering consciousness by way of sensation, according to the law of parallelism. Our psychological experiencing, however, is variable and untrustworthy, liable to all sorts of confusions and mistakes.¹ On these there is only one natural check—the law of the singularity of becoming, the "gignomenological law of identity." According to this law, it is factually impossible for us both to think *A* and not to think in a single moment—*i. e.*, in the duration of a single act of thought. This natural check is, however, only momentary, and if our developed thinking is ever to give us a system of ideas, on the accuracy of whose correspondence with the interrelations of the R-elements we can rely, it will be necessary to rise above the fluctuating level of psychological experiences which are only to be trusted in isolated moments, and standardize our thinking in terms of logical norms.

This is done by extending the element of "identity" which we find in the simple momentary experience, so as to apply it to the complex constructs which constitute most of our ideas. We cut off certain contents from the flux of experience, and arbitrarily endow them with an ideal uniformity, *i. e.*, an identical core of meaning, which is fixed by a definition. As abstracted once for all from the continuity of becoming, such a general idea is more than a summing up of a certain group of past experiences. It has "transgressive" character, *i. e.*, constitutes a type, and contains "vacant places" to be filled by similar experiences arising in the future. The concept is thus a standardized or logical idea. Judgment is like a complex concept, consisting of at least *two* standardized ideas bound together, not by the accident of a fluctuating psychological association, but in a standardized or constant way, with at least partial coincidence in space and time. This coincidence in turn is, of course, standardized, *i. e.*, withdrawn from the flux of chance associations, and fixed by the mind so as to conform to the ideal demands of the principle of identity. So too with inference, which is a series of standardized judgments leading in a single direction

¹ *Alienationen.* Ziehen regards the *quaternio terminorum* as the type of fallacy *par excellence*.

and culminating in a conclusion which sums up the series in a standard way, also according to the demands of the principle of identity. Corresponding to these standardized processes are standardized objects or "things," which, at least in the first instance, represent hypostatizations or mental fictions. Fictitious, however, as they may be, they are yet essential if we are to think *laws*—constant, uniform relations between the R-elements whose interaction according to definite laws constitutes reality. For constant relations imply terms which are themselves constant, and while the terms may be, as least in part, fictitious, the relations are not.

Thus we see that, by the thorough-going use of the principle of identity which is found in our fragmentary thinking, we are able to construct standardized thought-complexes which are at least capable of representing the uniformity of law in the world of reality; furthermore, since (1) the elementary psychological experiences *are* the R-elements reflected in sensation, and since (2) the principle of identity, by the use of which we have built up our logical thought-complexes, is a "gignomenological" principle, *i. e.*, a principle according to which the R-elements themselves behave, it follows that our logical thought-structures, to a considerable extent at least, can correspond to the inter-relations of the R-elements which constitute the real. Precisely in such empirical correspondences, and not at all in reference to *a priori* standards, consist truth and knowledge.

To investigate the possibility of such correspondence on its *material* side—*i. e.*, to consider how far the results of our thinking represent adequately the factual situation—is, in detail, a question for the special sciences, and, in principle, a matter of theory and criticism of knowledge. It is only so far as the R-elements are (1) correctly apprehended by our senses, and (2) correctly standardized in accordance with the principle of identity, that we attain to material truth or objective validity. Logic, as a science, is concerned wholly with the second of these requirements, *viz.* the various applications of the principle of identity in such a way as to standardize our thinking. Logic is thus *formal* rather than material, and may be characterized as the science of concrepancy and discrepancy, or as the study of the formal uniformity of thinking, in virtue of which it is either correct or false.

Of the volume in which Ziehen lays down these positions and deduces their consequences in detail, the greater part is taken up by what we should call "prolegomena." There is an introduction, a history of logic (part I), an epistemological *Grundlegung*, a psychological, a linguistic, a mathematical (part II), and an autochthonous *Grundlegung* (part III), before we finally come to the logic

itself (part IV). This deals with the concept, judgment, inference, proof, and theory of the sciences (chs. 1-5). The writer apologizes for a certain condensation in this portion of the work, and lays the blame upon the rising cost of printing, promising, however, to publish elsewhere and at greater length what has here been abbreviated.²

The impression made upon the reader by these various divisions in which the subject is treated, is one of stupendous erudition. The book contains, in principle, a psychology and a theory of knowledge, as well as a logic, and a history of logic as well as a systematic logic. In every field, the views of other thinkers are referred to individually, voluminous references are given to the literature, and wherever the writer takes up a definite position, it is always after discussion of alternative positions as maintained by other writers, and with full reasons assigned for not accepting such alternative positions. The views thus discussed range over the whole field of the history of logic and epistemology, from Plato and Aristotle down to the German publications during the War Period. Authorities most frequently referred to are Plato, Aristotle, Wolff, Kant, the lectures of Schroeder, and the logics of Sigwart, Wundt, and Benno Erdmann. With an only slightly lesser degree of frequency he refers to the Stoics, Sextus Empiricus, Petrus Hispanus, St. Thomas, Leibniz, Arnauld, Baumgarten, Hegel, and Mill, as well as to the work of Husserl, Ueberweg, Bolzano, Brentano, Meinong, Trendelenburg, Heinrich Haier, Krug, *etc.* The views of these writers receive consideration on all topics of importance, and in more special cases the more special literature is further cited. The general tone of the book is thus one of simple omniscience.

That countless volumes from German libraries have "lain before" Ziehen, is beyond doubt. That he has either made, or has caused to have made and classified, countless extracts from these various volumes, is also beyond doubt. But that a single human being, who has spent a good part of his life publishing in other fields, should have been able personally to read and assimilate the whole of this vast material, seems antecedently improbable, and a careful examination confirms the suspicion that some of the apparent erudition is external and superficial. The student can not help observing that much of the historical part is concerned mainly with establishing the precise *words* used by the various authors, but that little or no attempt is made to penetrate behind the terms used, to what the author means by them. This is especially the case with the Greeks and Scholastics, but in the case of the moderns also, Ziehen permits slight differences

² As an example of such condensation, *cf.* p. 741, where, after a very brief statement of the syllogistic rule *re* two particular premises, he adds, in the text, "For thorough-going exposition, see Ueberweg, p. 351."

of phraseology to blind him to essential resemblances of standpoint between the view he is criticizing, and the view he is defending. Thus Locke is taken to task for his "extreme sensualistic standpoint, which gives no possible basis for the development of a scientific logic" (113, *cf.* 154). But Locke, as is well known,³ believes in a world of interacting substances, which become known to man *via* the simple idea, and the "modes" which constitute science are extensions of the simple idea by means of a standardization of the principle of identity. The content of knowledge is derived from the substances, and the form is an extension of the formal principle inherent in the simple idea, so that the modes, while arbitrary in the sense that they are mental constructs, still follow the main outlines of reality. The resemblance between this position, and the basic position of Ziehen himself, is so close, that if a scientific logic is impossible on Locke's principles, it must also be impossible upon Ziehen's, for he similarly founds knowledge upon sense-data given to us in isolated "moments."

So too in the case of F. H. Bradley. It is difficult, in spite of the frequent references to chapter I of the *Principles of Logic*, to believe that Ziehen can ever really have read the whole of that chapter. Thus, he criticizes Bradley's well known formula for judgment, on the ground that in "This is an oak," *not only* "this," *but also* "oak" refer to reality (!) (620). Furthermore, in his treatment of analysis and synthesis, he displays complete ignorance of Bradley's very important demonstration of their inter-connection. In actual fact, there is a fairly close general resemblance between Bradley's idea of the "reference to reality," and Ziehen's own account of the existential element in judgment (632).

In the case of Plato, who is referred to very frequently, there are sins of commission and sins of omission. Thus, we are informed that while Plato has no technical terminology, *dianoia* is his frequent equivalent for *Urteil*. To the best knowledge of the reviewer, *dianoia* is nowhere employed in this sense. As a rule, it is the equivalent of "mind" or "intellect" used in a somewhat general sense. In a passage to which Ziehen perhaps refers (Rep. 511), it means the intellectual attitude of the scientist, *Verstand* as opposed to *Vernunft*, in Kant's terminology. Ziehen appears to be wholly ignorant that authorities like Bonitz and Natorp regard *doxa*, *doxazein*, and kindred expressions, as the nearest equivalent to *Urteil*. Again, in dealing with the "co-ordinate" view of affirmation and negation, he claims in a historical note that the view probably goes back as far

³ *Cf.* Lodge, *The Meaning and Function of Simple Modes in the Philosophy of John Locke*, 1918, ch. V.

as Aristotle. The treatment of negation in the *Sophistes* sufficiently proves that the view discussed goes as far back as Plato, but Ziehen appears wholly ignorant of this. What is still more astonishing, is, that he quotes Natorp in the same note, but appears to be unaware that Natorp rests definitely upon the Platonic treatment in the *Sophistes*. In general, it may be said that, in dealing with Greek writers, Ziehen tends to rest upon poor authorities (Zeller, Gomperz, Lutoslawski).

There are many similar ignorances. Thus, in spite of a careful analysis of Mill, he misunderstands Mill's treatment of the "representative idea" theory, and appears wholly ignorant that the famous "methods" (as has been pointed out by S. H. Mellone) are not original, but are derived from Herschel. Even with present-day writers in Germany, he is at times in error. Thus to state that Wundt "returned to the ancient tradition" of formal logic (203) is, in a sense, true, but misleading, and hard to reconcile with the further account of Wundt's work (209), as well as with the preface to Wundt's *Logik*. But the criticism of Wundt, as making analysis the sole characteristic attribute of judgment (367) is worse than misleading, as it is plainly contradictory in spirit and in letter to p. 162 in Wundt's *Logik*, where it is explained that judgment is the analysis of a thought (*Begriffszusammenhang*) which has arisen (genetically) by *synthesis*—a position closely resembling Ziehen's own. So again, even in the case of Erdmann, Ziehen appears wholly ignorant that he has Erdmann against him on the value of treating the concept "at the head of his theory." Not only Plouquet and Gruppe, but also Erdmann is to be counted among those who relegate the doctrine of the concept to the *Methodenlehre*.

These examples furnish, perhaps, sufficient evidence that Ziehen's omniscience is in part merely apparent. But let us leave these questions of erudition, and turn to the logical doctrine itself, and take the distinction between concept, judgment, and inference, as a test of Ziehen's powers of analysis. The relation between the concept and judgment, Ziehen treats as follows: Judgment can be considered either as a process taking place in time (without prejudice to its logical, *i. e.*, standardized, character), or as the result of such a process. The concept, however, is considered as the result of a process, never as a process. The difference between them is thus, that judgment possesses the characteristic of succession, whereas the concept does not. This difference is established by refusing to compare concept and judgment from a single standpoint. Regarded as processes, the process of concept-formation and the process of judging are indistinguishable (p. 372). Regarded as results, the concept—at

any rate the composite concept—and the judgment are indistinguishable (604). Yet the concept is declared to be psychologically and epistemologically prior to the judgment (453). How the flat oppositions between these standpoints are to be reconciled, is nowhere made clear.

On the relation between judgment and inference, he is scarcely more satisfactory. The following distinctions are twice enumerated: (1) Inference always consists of a number of judgments (at least two), while the (compound) judgment, though it may be analyzed into a certain relation between two judgments, still, as judged, expresses essentially a unity—*i. e.*, apprehends, in a single act of thought, the relation between the two contained judgments. (2) The judgments which together constitute an inference are so related that they lead to a single judgment (the conclusion) which “dominates” the series. (3) The element of succession is peculiarly prominent in inference. The principle of distinction here is identical with the principle by which Ziehen endeavored to distinguish between concepts and judgments. He regards the judgment as a result, and inference as a process, and refuses to compare them from one and the same basis. He is, of course, far too good a psychologist not to know that *every* judgment, as actually judged, is reached by inferential processes which sum up evidence derived from experience, and terminate in a sort of conclusion, so that, as processes, judgment and inference are indistinguishable (702). Similarly, the result of inference—*viz.*, the conclusion, in which, the ground *M* being “eliminated,” we are left with *S is P*—is explicitly recognized as a judgment: so that, as results, judgment and inference are indistinguishable. But he steadily refuses to recognize the essential identity of conception, judgment, and inference, and utterly fails to see the serious inconsistencies into which his persistent refusal leads him.

On induction, he is weak. He believes that nothing essentially new has been discovered since the work of Mill (*sic*), and makes the formal distinction between (1) conclusions which are on the same level of generality as their premises (equations), (2) conclusions on a lower level of generality (deductive reasoning), and (3) conclusions on a higher level (inductive reasoning). There seems to be no insight into the nowadays well known fact that *all* our thinking is both inductive and deductive, and consequently his treatment of the *Archaeopteryx* as an example of inductive reasoning from a single instance, is puerile and out of date. His work in this field is formal and conventional.

So much by way of negative criticism. In spite of these and similar deficiencies in respect of logical penetration, and in spite of

occasional lapses from the high standard of erudition which he has set himself, there is still a definite place for his book. With its copious masses of references to the literature, it is a perfect mine of useful information, and in matters of detail, it is full of suggestions and points of view which are substantially new. Thus, the graphical treatment of the various types of opposition between concepts leads to results which are new. The treatment of definition, for all its wearisome elaboration of detail, is largely admirable (especially in the summary), and largely new. His recognition of the value of two particular, two negative premises, of the value of arguments from the affirmation of the consequent, *etc., etc.*, is largely new—in print, at any rate—though his conclusions are hardly as far-reaching as the case admits; and generally, throughout the book, there are to be found numerous passages which are either distinctly novel or distinctly illuminating. These are so numerous that it is impossible, within the limits of a single review, to treat them adequately. The value of the book, therefore, for students in our graduate seminars, is beyond praise. But if we look further and ask, is the book of so great value as to be esteemed above the books we already use—Erdmann, Wundt, Bradley, *etc.*?—we must answer in the negative. Ziehen's *Lehrbuch* will have to be considered, but only as one learned treatment among other treatments, of which none is more learned, but some are more profound.

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JOURNALS AND NEW BOOKS

THE AMERICAN JOURNAL OF PSYCHOLOGY. April, 1920. *Sir Thomas Wrightson's Theory of Hearing* (pp. 101-113): E. G. BORING and E. B. TITCHENER.—Wrightson presents many interesting mechanical and physiological facts concerning the nature and action of various parts of the middle and internal ear. These facts are of value but have not yet been developed into a theory of hearing. *On the Non-Visual Perception of the Length of Lifted Rods* (pp. 114-146): LOUIS B. HOISINGTON.—The perception of length arising from the lifting of a rod depends on the relations of the following impressions—intensity, time, pressure gradient and muscle strain. The perception of length can be synthetically produced. *A New Form of Stimuli for Lifted Weight Experiments* (pp. 147-151): SAMUEL W. FERNBERGER.—The use of hard rubber weights is suggested rather than wooden ones that vary in weight or metallic ones that give intense temperature sensations. *The Psychological Examination of Conscientious Objectors* (pp. 152-165):